

What is claimed is:

1. A high voltage semiconductor device, comprising:  
a high concentration collector area of a first conductive type;  
a low concentration collector area of a first conductive type formed on the  
high concentration collector area;  
a base area of a second conductive type formed on the low concentration  
collector area and having a trench which penetrates the low concentration collector  
area in a vertical direction at the edge of the trench;  
a high concentration emitter area of a first conductive type formed on a  
predetermined upper surface of the base area; and  
an emitter electrode, a base electrode, and a collector electrode isolated from  
one another and connected to the emitter area, the base area, and the collector  
area, respectively.

2. The high voltage semiconductor device of claim 1, wherein the width of  
the trench is 1/10 times the depth of the trench.

3. The high voltage semiconductor device of claim 1, further comprising  
an oxide layer which fills the trench.

4. A method of fabricating a high voltage semiconductor device,  
comprising:  
preparing a semiconductor substrate having a high concentration collector  
area and a low concentration collector area of a first conductive type;  
forming a base area of a second conductive type on the low concentration  
collector area;  
forming a high concentration emitter area of a first conductive type on a  
predetermined upper portion of the base area;  
forming a trench penetrating the base area and the low concentration  
collector area at the edge of the base area, spaced apart from the emitter area; and

11 forming an emitter electrode, a base electrode, and a collector electrode  
12 connected to the emitter area, the base area, and a semiconductor substrate,  
13 respectively.

1 5. The method of claim 4, wherein the trench is formed using a reactive  
2 ion etching method.

1 6. The method of claim 5, wherein the reactive ion etching is performed  
2 using  $\text{Cl}_2$  or  $\text{SF}_6$  as a reaction gas.

1 7. The method of claim 4, wherein the width of the trench is 1/10 times  
2 the depth of the trench.

for sheet 4 of 4